

bottoms, but hurried and scurried down the ravines to swell the North Fork of the Salmon which, in turn, joined the South Fork at the "Forks of the Salmon," when the stream of added volume wended its way to Somes Bar, blending its waters with the Klamath River. At that point, four rivers empty into the Klamath on the south side—Shasta, Scott, Salmon, and Trinity—and these drain a vast precipitous watershed. On the north side of the Klamath are numerous large creeks that empty into the main river—creeks that in summertime surpass the Los Angeles River. Fishing is good—mountain trout just after May 1 of each year—while later it is not so good. In the fall, well, we have steelheads and salmon, as the papers detail; also the largest fish hatchery in the State. So, come up after the first fall rains and enjoy our fishing.

#### THE DIPHTHERIA EPIDEMIC

But this does not describe a diphtheria epidemic as handled at and around Sawyers Bar in 1880. School was out, summer was in full swing, when I was called to see a child with diphtheria. The kindly neighbors sought to help the afflicted families, so the disease spread quickly; there was no quarantine, little segregation, the days were warm if not hot, the buildings not closely together, abundant good air and water, but the type of the disease was what my forebears termed "*Putrid sore throat*." Those afflicted with it positively stank, so I do not doubt that if George Washington had this type he either died of toxemia or phlebotomy—*quien sabe?* The fauces and nasal passages were thickly coated with a yellow, cream-colored, thick membrane; temperature not over 101 degrees, patient stolid, embarrassed breathing due to pharyngeal engorgement, and a horrible odor—so bad that, despite the liberal use of chlorid of lime and phenol, our only available disinfectants, it was impossible to stay in the room with the patient. I have correctly diagnosed this type of diphtheria before I entered a room merely by the odor. Some cases occurred at Black Bear Mine, some seven miles away, where one baby had an inflamed neck (intertrigo); this became infected, and despite local treatment plus internal medication, the toxemia proved fatal—a fact not to be wondered at, perhaps, since in this home, on a sidehill, high off the ground with nothing but posts to rest upon, the wind swept daily, and butter stored in a keg became contaminated and inedible.

A Welsh boy was treated. I had to have an old-time Cornish woman translate the Welsh language pertaining to the case to me. For about six weeks I did not go to bed, but laid down where I happened to be, on cot or lounge, to be called two hours later to go and visit new patients or revisit the older ones.

#### TREATMENT

The remedies used, aided by the pure mountain air and clear cold water, consisted principally of iron internally and application of Loeffler's solution locally; a typical treatment for a ten-year-old child being:

R̄ Tincture of Ferri Chloridi ʒii  
Glycerin fl. ʒiv

A teaspoonful was given every three hours without water, preceded by an initial dose of calomel, five grains. The throat was painted every time I got around to do it, using Loeffler's solution on a swab. A small amount of whisky was given, if indicated. The iron mixture, given undiluted, was to coat the fauces as well as combat the infection. I soon learned that if the iron turned the membrane black the patient got well, which happened with the majority, for out of the 110 cases only five died; so that with no skilled nurses, no antitoxin, I think the results were good. I know everyone coöperated and shared each other's sorrows.

Loeffler's solution contains 4 per cent ferric chlorid solution, so we weathered through the epidemic—houses and clothing aired and, as far as possible, disinfected. In later years I have wondered if a like treatment would be of service in serious diphtheritic infection to aid antitoxin in its work—there being with us only one case of laryngeal involvement.

## CLINICAL NOTES AND CASE REPORTS

### GAS-GANGRENE INFECTION OF THE UTERUS

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**G**AS-GANGRENE infection is one of the most serious complications met with in modern surgery. A search through the available literature on the subject, involving the uterus, reveals the infection to be practically 100 per cent fatal. In dealing with this type of infection, one must be radical in surgical treatment and early radical removal of the internal genitalia, with massive doses of antitoxin, plus supportive treatment, will probably result in an occasional saving of human life.

#### REPORT OF CASE

We wish to report the successful cure of a gas-gangrene infection, involving the uterus of a three and one-half months pregnant woman, Mrs. L. M., married, age 26; occupation, housewife; American; white; para, two.

The above-named patient was brought to the Siskiyou County General Hospital at 6 p. m. February 23, 1935, with a complaint of chills, high fever, severe abdominal cramps and general malaise.

**Past History.**—Born in Utah. Lived in California nineteen years. Measles and mumps in childhood. Previous surgery: Curettement following childbirth, and perineal repair three years ago. Tonsillectomy several years ago. Husband living and well. Two children living and well, ages four and three. Cta.: Menses began at fourteen, every 28/5. No dysmenorrhea. Last normal period, November 6, 1934. Other systems essentially negative. Family history essentially negative.

**Present Illness.**—The patient's last normal menstrual period was in November, 1934. The patient was told, following an examination on or about December 25, 1934, that she was two months pregnant. On February 21, 1935,

the patient attempted to induce an abortion, using the following technique: She douched the vagina thoroughly, sterilized a piece of elm bark, six or eight inches in length, by dipping it in boiling water, wrapped the tip with cotton and inserted the instrument into the uterus by the vaginal route. The patient states that she fainted at this time, and upon revival she withdrew the foreign body. Bloody vaginal flow followed a few hours later, and on the following day she experienced severe abdominal cramps. On the morning of February 23 she began to have chills and fever. The abdominal cramps became more severe, and she was brought to the hospital at 6 p. m.

**Examination and Surgical Procedures.**—Examination revealed a medium-statured woman of twenty-six years, sobbing and crying with pain. Temperature was 104 degrees Fahrenheit. Pulse 160 per minute, regular, but of poor quality. Respiration was 20 per minute. The patient appeared quite toxic; the mucous membranes were extremely pale. The chest revealed no pathology. The abdomen was flat, with marked rigidity of the lower abdomen. Pelvic examination revealed an approximately three and one-half months fetus, partially expelled from the uterus into the vagina. The tissues of the fetus were macerated and gave an extremely foul odor. Much foul gas was expelled from the uterus, upon introducing a weighted speculum into the vagina. There were present in the canal of the cervix and on the fetus numerous one-half centimeter blebs containing serum and gas. Under gas anesthesia, the uterus was curetted free of its contents, including a placenta that was filled with small blebs containing serum and gas. This procedure was accompanied with considerable hemorrhage. Smears were taken from the fetus, placenta, and the cervical canal, at this time, and the vagina was then temporarily packed with sterile gauze. Laboratory report of the smears showed a pure strain of gas bacillus presenting the usual morphology. One therapeutic dose of polyanerobic serum (B. welchi 10,000 units, B. sordellei 50,000 M. L. D., *Vibrio septique* 10,000 units, and edematiens 50,000 M. L. D.) was administered intramuscularly, and 1,000 cubic centimeters of normal saline, containing 5 per cent glucose, was given subcutaneously. Blood count at this time was 2,700,000 red blood cells; hemoglobin, 50 per cent. Blood pressure was 90/30. Pulse 140 per minute, regular, poor volume. Blood donors were obtained, and 500 cubic centimeters of citrated whole blood, containing a second therapeutic dose of antitoxin, was administered intravenously. Following this, blood pressure rose to 110/60, pulse 120 per minute. The patient was transferred to surgery at 8 p. m., and under low spinal anesthesia a vaginal panhysterectomy was performed. The uterus, fallopian tubes, ovaries, including one inch of the uterine attachment of the broad ligament, were dissected en masse (in one piece), the dissection being carried laterally quite widely into the edematous broad ligaments, round ligaments, and uterosacral ligaments. The peritoneum was then closed with a purse-string suture of plain catgut, the divided ends of the round ligaments, broad ligaments, and uterosacral ligaments were sutured together, slinging the same beneath the bladder. The fascial planes were then united with chromic catgut and silkworm gut sutures. The patient withstood the operation satisfactorily, pulse remaining 120 to 130, blood pressure 110/60. Examination of the pathologic specimen revealed the uterus, tubes, ovaries, and parametrial tissue to be filled with blood and lymph. The cervix was markedly congested with lymph.

Four hours following surgery, a third therapeutic dose of polyanerobic antitoxin was administered intramuscularly, and at 9 a. m. on the following morning a fourth therapeutic dose of antitoxin was administered, and 300 cubic centimeters of whole citrated blood was given intravenously.

**Postoperative Course.**—The patient ran a mild septic fever for four days, postoperative, with pulse ranging from 100 to 120 per minute, following which the temperature curve approached the normal, with pulse coming down to 70 to 80. The patient developed some serum sickness five days postoperative, which was controlled with adrenalin. Physical examination on March 5, 1935, revealed the following: The patient appeared rather anemic; had no system complaints; lung fields were clear; heart

rate was 64, regular. Blood pressure was 120/80. Abdomen was soft and flat. Some tenderness to deep palpation in the lower abdomen. Pelvic examination revealed the wound in the vaginal vault to be healed by primary union. Silkworm gut sutures were removed.

**Laboratory Report.**—Urine was negative. Red blood cells, 3,700,000; white blood cells, 8,800; normal differential. Blood Wassermann was negative.

Report of examination of slides taken at the time the patient was curetted, from the Department of Public Health, State of California, Bureau of Laboratories, is as follows: "We received the slides and examined them, after staining by Gram's method. They showed numerous Gram-positive bacilli, having the usual morphology of organisms of the gas-gangrene group. (Signed) W. H. Kellogg, M. D., Chief of the Bureau of Laboratories."

The patient was discharged cured on March 8, 1935.

#### COMMENT

Successful cure of gas-gangrene infection is reported: Case, a three and one-half months' pregnant uterus, with radical vaginal panhysterectomy; plus 40,000 units B. welchi, 200,000 M. L. D. B. sordellei, 40,000 units vibrio septique, and 200,000 M. L. D. edematiens, and 800 cubic centimeters of whole citrated blood, and 3,000 cubic centimeters of normal saline with 5 per cent glucose; the antitoxin, blood and fluid being administered over a period of twelve hours, preceding and following surgery.

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#### PAIN ALLEVIATION IN INOPERABLE MALIGNANCY

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IN a recent communication<sup>1</sup> Doctors Walter B. Coffey and John D. Humber described their experience with an aqueous suprarenal extract in the treatment of malignancy. I wish to refer to that part of the paper dealing with the pain-alleviating properties ascribed to the extract, and its action on the blood cholesterol.

During the past four years I have used, among other preparations, aqueous extracts of the suprarenal, thyroid, and spleen in cases of inoperable malignancy. These were prepared by extraction of the ground-fresh tissue in normal saline, made slightly alkaline with NaOH. After a twenty-four hour extraction, a precipitate was effected by adding .2 per cent acetic acid, or acetone. In case of the suprarenal gland, the solution was first treated with ammonium hydroxid (to precipitate out medullary products) filtered and then followed by .2 per cent acetic acid. The protein mass consisting chiefly of globulin and allied substances was centrifuged, dissolved in normal saline in 1:100 ratio, brought up to a pH 7.5 and filtered through a Seitz filter. To this filtrate .4 per cent tricresol was added. It was noteworthy that, although these preparations came from three different sources, the pain-alleviating property was common to all. The action of some of these preparations was more pronounced than that produced by opiates. On several occasions pain disappeared within a few minutes after injection, and was for as long as from four to six hours.